STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

November 29, 2011

Mr. Juan Thomas
U.S. Environmental Protection Agency, Region 5
77 West Jackson Boulevard
Chicago, Illinois 60604-3507

Dear Mr. Thomas:

SUBJECT: Final Determination of Mixing Zone Reauthorization Request; Johnson Controls, Inc. (JCI) (former Stanley Tools); MID 099 124 299

The Department of Environmental Quality (DEQ), Resource Management Division (RMD), has reviewed the request for a Mixing Zone Determination for venting groundwater to the Red Cedar River from JCI, in Fowlerville, Michigan and forwarded that request to the DEQ, Water Resources Division (WRD). The response WRD provided identifies the acceptable concentration limits for discharge of the various chemicals characterized in the mixing zone request to the Red Cedar River.

Based on the information the WRD provided, it is determined that there is a reasonable potential for the discharge of some chemicals to cause or contribute to water quality standards (WQS) being exceeded.

Recommended mixing zone-based groundwater surface water interface (GSI) values are summarized in the table below:

Table 1: Plume Venting to the Red Cedar River

Parameter	Final Acute Value (µg/L)	Reported Worst Case Maximum Site Concentration (µg/L)
Trichloroethylene	3,500	5,200
Arsenic	680	161
Hexavalent Chromium	32	20
Copper	154	103
Nickel	3,434	1,180
Cyanide	44	10

General Comments

- The final acute values listed above are the acute mixing zone-based GSI criteria. These limits are provided for chemicals determined to have a reasonable potential to exceed the acute mixing zone-based GSI criteria. These values (as well as the generic GSI criteria for other chemicals not specifically identified in the mixing zone request) must not be

exceeded at the GSI compliance monitoring wells; if they are, further remedial action will be required. The facility has the following options in regards to parameters that exceed the acute mixing zone-based GSI criteria in site monitoring wells:

a. If any existing exceedances are upgradient of the compliance monitoring wells, JCI must demonstrate that data from all of the compliance monitoring wells in the Mixing Zone Compliance Monitoring Plan are, and will be, in compliance with acute mixing zone-based GSI criteria for those parameters. Averaging of groundwater data is not allowed for comparison to generic GSI or acute mixing zone-based GSI criteria, nor is it allowed for bioaccumulative contaminants of concern (BCCs). Acute mixing zoned-based or generic GSI criteria may not be exceeded in any individual GSI compliance monitoring well.

b. Prevent the discharge of all parameters that exceed the acute mixing zone-based GSI criteria in the GSI compliance monitoring wells. This option would require the focus of subsequent site hydrogeological investigations to define remediation designs for capturing the groundwater discharge, further plume characterization, and identification of sources for source control measures.

2. It has been determined that any other parameter on the mixing zone request form, not given a recommended mixing zone-based GSI criteria in the table above, or in the attached memorandum, will not cause or contribute to WQS being exceeded at this time. This determination is based upon the reported maximum values in the mixing zone request that was submitted to the WRD by the RMD.

In order to demonstrate the groundwater discharge long-term compliance with the mixing zone-based GSI criteria, JCI will need to continue the Mixing Zone Compliance Monitoring Plan, or submit revisions for review and approval. The Mixing Zone Compliance Monitoring Plan should include a Sampling and Analysis Plan (to address both mixing zone chemicals and other chemicals reported in the mixing zone request), identification of the wells that JCI proposes to sample to show compliance with the mixing zone-based GSI criteria (along the GSI at the GSI point of compliance) and any sentinel wells within the appropriate portions of the plume, and provide an explanation of the monitoring schedule and reporting process.

In addition to the specific Mixing Zone Compliance Monitoring Program, if any GSI compliance monitoring data show exceedances of the maximum value reported to the WRD in the mixing zone determination request (shown in the table below),

Chemical or General Chemistry Parameter	CAS #	Worst Case Maximum GSI Discharge Concentration
cis-1,2-Dichloroethene	156-59-2	1,300 µg/l
Vinyl Chloride	75-01-4	110 µg/l
Cadmium	7440-43-9	13 µg/l

the data must be promptly evaluated by JCI to determine the significance and whether a new mixing zone determination request should be submitted to the WRD, and that information is

included in the Mixing Zone Compliance Monitoring Report. If there is an exceedance of twice the prior reported maximum value for any parameter of concern, please contact this office for further direction.

Should you require further information, please contact me by telephone; at slaytond@michigan.gov; or DEQ, P.O. Box 30241, Lansing, Michigan 48909-7741.

Sincerely,

David Slayton, Geologist Specialist
Permits and Corrective Action Unit
Hazardous Waste Section
Resource Management Division
517-373-8012

cc: Ms. Bethel Skinker, DEQ
Ms. Virginia Himich, DEQ
Mr. Dale Bridgford/Mr. John McCabe/Mr. David Slayton
Corrective Action File